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TRAINING SUPERVISORS IN A COLLABORATIVE TEAM APPROACH TO PROMOTE PEER INTERACTION OF CHILDREN WITH DISABILITIES IN INTEGRATED PRESCHOOLS

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Three supervisors of integrated preschools were trained in a collaborative team approach to encourage resource and classroom teachers to develop strategies that promote peer interaction of all children, including children with disabilities. The focus of classroom teachers' behaviors and the interactive play of children with disabilities were measured daily in both a training (indoor play period) and a generalization (outdoor play period) setting. In a multiple baseline design, supervisors were individually trained in a collaborative team approach using a manual, modeling, and role playing; then they implemented the approach with classroom and resource teachers. We found that after supervisor training, classroom teachers increased their behaviors directed towards children with disabilities and decreased their behaviors directed towards nondisabled children. Moreover, we found a doubling of the interactive play of children with disabilities and, for two of the three classes, an increase in the interactive play of comparison children, randomly selected by the classroom teachers. Changes in both teachers' and children's behaviors were also found in the generalization setting. The implications of the results for interventions in community settings are discussed.

DESCRIPTORS: teacher training, social interaction, preschool children

There has been considerable attention in the professional literature to procedures that promote the social competence of children with disabilities in integrated preschool settings (e.g., Guralnick, 1990; Odom & McEvoy, 1988; Odom & Strain, 1984a). Several studies have found that placement of these children in regular preschools is not sufficient to produce improvements in their social behaviors (Beckman, 1983; Beckman & Kohl, 1984; Guralnick, 1981; Honig & McCarron, 1988; Ipsa, 1981; Odom & McEvoy, 1988; White, 1980). The development of adequate levels of social competence in children with disabilities may depend upon the availability of systematic procedures to promote the social interaction of these children with their nondisabled peers.

The peer interaction of many preschoolers with disabilities is an issue for resource teachers (early childhood special educators) who may both help children directly and consult with classroom teachers. Needed are strategies to promote peer interaction that can be implemented by educators within the staffing typically available in integrated preschools. Peer interaction strategies have tended to consist of experimenter-designed procedures that are implemented by teachers (Strain & Kerr, 1981) or peers (Odom & Strain, 1984b; Sasso & Rude, 1987) and that target individual children with disabilities (Sasso & Rude, 1987) or the entire class (Hundert & Houghton, 1992; Odom et al., 1988). These approaches have tended to produce immediate increases in peer interaction, but generalization of effects over time or across settings has remained elusive (Hundert & Houghton, 1992; Odom & McEvoy, 1988).

Strategies to promote these peer interactions may require the involvement of the classroom teacher in the development as well as the implementation of those strategies. Otherwise effective behavior programs developed without teacher input may not be implemented at all, implemented inaccurately,

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or abandoned prematurely (Peck, Richarz, et al., 1989). The soundness of the design of a behavioral intervention is not a guarantee of its successful application (Johnson & Pugach, 1990). The involvement of the teachers who apply behavior-change strategies in the design of those strategies may be an important factor in their commitment to implementation (Burgio, Whitman, & Reid, 1983; Idol & West, 1987; York & Vandercook, 1990).

Given that many teachers feel ill-prepared to accommodate a child with disabilities (Myles & Simpson, 1989), training may be needed in teacher development of behavior-change programs. One promising possibility is training educators to design their own strategies through a collaborative process. A collaborative consultation process has been used to assist teachers in the implementation of functional curricula for children with developmental disabilities in elementary schools (Parsons, Schepis, Reid, McCarn, & Green, 1987), in the development of programs to manage the behavior of students (Fuchs, Fuchs, Bahr, Fernstrom, & Stecker, 1990), and in the incorporation of individualized educational objectives for disabled preschoolers in regular programs (Peck, Killen, & Baumgart, 1989). In the Peck, Killen, and Baumgart (1989) study, a consultant assisted individual teachers in generating strategies to address the specific language objectives of a child with disabilities during regular classroom activities, and in modifying those strategies after implementation. Increases in teachers' instructional behaviors and in children's targeted behaviors were found both in the target setting and in an additional setting.

Behavior analysts have successfully used consultative training with teachers (Kohler & Greenwood, 1990; Selinske & Greer, 1991), institutional staff (Reid, Parsons, & Green, 1989), and parents (Dangel & Polster, 1984) to implement a prepared intervention. A collaborative team approach also involves these individuals in the change process, but extends the consultation to include the care provider in the development of the intervention strategy (Idol & West, 1987).

A collaborative team approach may be an effective strategy in integrated schools where different individuals (e.g., school administrator, resource teacher, and classroom teacher) have input into the development of a program plan (Thousand, Nevin-Parta, & Fox, 1987). Although collaborative strategies have been widely applied (Klein & Sheehan, 1987; Pugach & Johnson, 1989; Thousand et al., 1987), there has been little or no empirical evaluation of the effects of this approach to promote peer interaction of children in integrated settings. Nor has there been evaluation of indirect training of a collaborative team approach, where experimenters train supervisors who in turn train teachers. Indirect training strategies have been successfully used to train teachers in classroom behavioral procedures (Page, Iwata, & Reid, 1982; Peck, Killen, & Baumgart, 1989) and institutional staff in behavioral instruction (Burgio et al., 1983). The purpose of this study was to examine the effects of training supervisors in a collaborative team approach on teacher behaviors and child peer interactions. In the present study, 3 supervisors were trained in this approach to encourage resource and preschool classroom teachers to develop their own program strategies to promote social competence in children. It was expected that training supervisors in this way would lead to increases in teacher behaviors towards children with disabilities and increases in peer interaction of both disabled and nondisabled children. This study extends the literature by examining the impact of an approach in which early childhood educators together develop strategies to promote the peer interaction of all children in a class. Of particular interest was the generalization of training effects to teachers' and children's behaviors in a setting not the focus of training.

METHOD

Participants and Settings

The study was conducted in three preschool centers containing 40 to 60 children and organized into classes of 11 to 18 children. The centers were directed by supervisors, each of whom had considerable preschool experience but no specialized train-

ing in teaching children with disabilities. Supervisors were responsible for directing the operation of the units, including overseeing the activities of the classroom teachers in class and individual programming.

One classroom in each of the three preschool centers participated in the study. The classroom teachers were all female (with an average of 5.7 years experience) and had received a community college diploma in early childhood education. Each class was assigned a part-time resource teacher, who was employed by a second agency to facilitate the integration of children with disabilities. The 3 female resource teachers had the same qualifications as the classroom teachers, but in addition, they had completed specialized training in teaching children with disabilities and averaged 4.2 years experience as resource teachers.

Resource teachers were responsible for developing individual program plans for children with disabilities and consulted on their implementation with classroom teachers. Rarely did resource teachers directly implement programs. Typically, classroom teachers were invited to have input into objectives for individual children with disabilities, but rarely developed those objectives. Similarly, resource teachers were not usually involved in planning activities or lessons for the class. Supervisors and teachers were not informed of the specific purpose of this study until a debriefing session was held at the end of the study. They were told the study was designed to examine "the promotion of social integration" of children with disabilities.

All 6 children with disabilities in the three preschool classes participated in the study. Shortly after the start of the study, 1 child with disabilities moved from the preschool. The remaining children were identified as having a "special need" under the Province of Ontario guidelines (which enabled the preschool class to receive the part-time services of a resource teacher). Class 1 contained 18 children, ranging in age from 3.6 to 5.0 years, and included 2 children with disabilities. John, age 3.9 years, and Charles, age 4.5 years, were diagnosed as having a moderate to severe communication disorder coupled with a behavior disorder. Class 2 contained 15 children, ranging in age from 3.0 years to 3.7 years, and included 1 child with a disability. Theresa, age 3.6 years, was diagnosed as moderately developmentally disabled. Class 3 contained 14 children who ranged in age from 3.4 years to 4.6 years and included 2 children with disabilities. Vicky, age 3.8 years, suffered from spina bifida and a moderate hearing loss. Betty, age 4.2 years, was diagnosed with Down Syndrome and a moderate developmental disability. All children were rated by their teachers as having few friends and showing low rates of positive peer interaction. Observations later revealed the mean percentage of disabled children's interaction to be one third of that of a sample of comparison children in their classes. Psychometric assessments of their developmental or cognitive levels were unavailable.

Classroom teachers selected at random 2 nondisabled children, matched for age and gender with the disabled children, to serve as comparison children to measure any gains in social behavior made by the children with disabilities. Van Houten (1979) suggested measures be taken of normal children to demonstrate social validation of the results of treatment effects. The 2 boys and 4 girls who served as comparison children ranged in age from 3.1 years to 4.8 years, with a mean of 3.8 years. Informed written consent was obtained from parents.

Settings

Observations of children's social interaction with peers were recorded in one training setting (indoor play period) and one generalization setting (outdoor play period). Play activities were selected for observation because they tend to promote higher rates of interaction than other activities in preschool settings (Honig & McCarron, 1988). The 30-min indoor play period was held in the classroom, when children could enter a number of prearranged play areas (e.g., sand-play center, dress-up center, kitchen center, blocks center, vehicle center) and select activities or toys with which to play.

The generalization setting for each class consisted of the regularly scheduled 30-min play period that followed within 2 hr of the indoor play period. Here, children were free to use available outdoor

play equipment (e.g., slides, swings) or engage in other activities (e.g., ride tricycles, play in sandbox).

Measurement System

Trained observers coded the behaviors of classroom teachers and the children's peer interactions in both training and generalization settings for 30 observations, each school day for 10 weeks. Observers were situated outside the immediate area of activity, but were close enough to hear the verbal behavior of the teachers and children. Using 10-s signals emitted by an audiotape via earplugs, observers recorded a child's or teacher's behavior on a momentary time sampling basis. Observers then coded the behaviors of another participant 10 s later. Observations were taken for each child and each teacher. To control for possible sequence effects, the behaviors of all children with disabilities, all comparison children, and the classroom teacher were recorded once every minute during the 30-min session; the order of observation was randomly determined each session.

Teacher's measures. Teacher behavior categories were adopted from the "teacher focus" subcategory of the Eco-behavioral System for the Complex Assessment of Preschool Environments (ESCAPE) (Carta, Greenwood, & Atwater, 1986). These categories were selected to measure changes in the focus of classroom teachers' behaviors with the introduction of training. It was not possible to track teacher behaviors more specifically associated with their later implementation of strategies to promote peer interaction, because these strategies were not developed until halfway into the study. Moreover, the inconsistent availability of the resource teachers (a mean of 25% of observations) precluded measurement of their behaviors.

The definitions for the targets of the classroom teachers' behaviors were as follows:

1. Individual child with disabilities (I+). The teacher was located within 3 m of the target child and her verbal or nonverbal behavior was directed exclusively towards only 1 child with disabilities (who may have been in a group or isolated).

2. Individual child without disabilities (I−). The teacher was located within 3 m of the target child and her verbal or nonverbal behavior was directed exclusively towards only 1 child without disabilities (who may have been in a group or isolated).

3. Group with 1 or more children with disabilities (G+). The teacher's verbal or nonverbal behavior was directed to a group that included 1 or more children with disabilities (e.g., asking the students to put away their toys).

4. Group without a child with disabilities (G−). The teacher's verbal or nonverbal behavior was directed towards a group that did not include a child with disabilities (e.g., distributing aprons to a group of nondisabled children who were about to play with water toys).

5. Other teacher (OT). This code was recorded when the teacher directed her behavior towards the resource teacher.

6. No response (NR). No response was recorded when the teacher made no observable response directed to another individual or group (e.g., looking at a child).

At the end of the study, both resource and classroom teachers completed a five-item survey adopted from Parsons et al. (1987) on which they rated the acceptability of the intervention in the study on a 5-point Likert scale. The specific items listed were:

1. The way in which the supervisor went about attempting to assist was more acceptable to you than the manner in which other changes have occurred in your setting.

2. The changes to your actions have made your job less difficult.

3. The manner in which you worked out strategies was more helpful than typically is the case.

4. The manner in which you worked out strategies was easier than typically is the case.

5. The strategy you developed for social interaction was more effective than what you were previously doing.

Children's measures. The social interactions of children with disabilities and comparison children were measured in both training and generalization settings. The behavioral categories for recording social interactions were adopted from Odom et al. (1988) and consisted of:

1. Isolated/occupied play (I/O). The child was engaged in a play activity (e.g., pushing a toy truck, coloring), but was more than 2 m away from any other child.

2. Proximity play (PP). The child was engaged in a play activity within 2 m of at least 1 other child, but was not interacting either verbally or nonverbally with another child.

3. Interactive play (IP). The child was engaged in a play activity within 2 m of at least 1 other child, and was interacting with another child, either verbally (e.g., talking about a play activity) or nonverbally (e.g., allowing another child to take turns playing with a toy, listening when another child was talking specifically to him or her).

4. Negative play (NP). The child exhibited an aggressive, hostile, or rejecting verbal (e.g., yelling) or nonverbal (e.g., pushing, sticking out tongue, threatening to hit) behavior directed towards another child.

5. No play (NO). The child was not engaged in any play activity (e.g., watching other children).

Observer Training

The observers were four paid research assistants who had or were about to have completed an undergraduate degree in the social sciences. Each observer received 12 hr of training in the response definitions and observation system. Training consisted of observers' completing written training manuals and practicing recording with videotapes of children's interaction in settings not used in this study. Training of individual observers continued until each obtained 90% correct on a paper-and-pencil quiz similar in format to that described by Stanley and Greenwood (1981), and until at least 80% mean overall agreement with the first author was reached for three consecutive practice observations on all behavior codes. Observers were not informed of the purpose of the study or of the experimental phase in effect. To control for observer drift (O'Leary & Kent, 1973), observers were rotated to different classes approximately midway through the study.

Interobserver reliability checks were held for a random third of all observations in both training and generalization settings. A second trained observer simultaneously but independently observed and recorded children's and teachers' behaviors, using earphones connected to the same audiotape machine as that used by the first observer. Interobserver agreement was calculated for the occurrence of each behavior by dividing the number of agreements by the number of agreements plus disagreements, multiplied by 100. An agreement was defined as occurring when both observers recorded the same code during the same observation interval. The mean interobserver reliabilities for teachers' measures were I+ = 100%; I− = 99.1% (range, 97% to 100%); G+ = 98.5% (range, 89% to 100%); G− = 97.7% (range, 90% to 100%); OT = 89.0% (range, 82% to 96%); and NR = 91.1% (range, 86% to 100%). The mean interobserver reliabilities on the children's measures were I/O = 93.7% (range, 88% to 98%); PP = 95.6% (range, 87% to 100%); IP = 92.3% (range, 82% to 100%); NP = 93.8% (range, 86% to 100%); and NO = 82.2% (range, 84% to 95%).

Experimental Design

A multiple baseline design across subjects (Baer, Wolf, & Risley, 1968) was used to examine the effects of supervisor training in a collaborative team approach on teachers' behaviors and the children's social interactions in training and generalization settings. The experiment began with a baseline phase, during which teachers were asked to conduct the daily sessions in their normal manner. This was followed by supervisor training that encouraged resource teachers and classroom teachers to develop and implement a strategy to increase the peer interactions (in the training setting) of all children in the class. Changes in teachers' and children's behaviors were monitored in the generalization setting.

Baseline. After 3 days for children and teachers to become familiar with the observers, observations began in both the training and generalization settings. Teachers were unaware of the behaviors being measured, and they were asked not to alter their classroom routines or the manner in which they dealt with children's behaviors.

Table 1
Description of Programs Developed by Teachers in Each Class to Promote Classwide Peer Interaction

	Class 1	Class 2	Class 3
Target behaviors	Increased cooperative play Increased child-resolved conflict Increased child–child helping	Increased child-resolved conflict	Increased sharing during play Reduced conflict
Curriculum and activities	Number of children in one play center limited to 4	Number of children in "sensory bin" and "floor play" areas limited to 3	Visual cue to indicate the number of children allowed at each play area
Instructional behaviors	Teacher verbal and physical prompts for positive social interaction	Teacher modeling, verbal prompting of problem solving	Increased sharing during play Reduced conflict
Physical arrangements	Number of play materials in each play center limited to three	A teacher located at "sensory bin" and "floor play" areas	Reorganization of play area to provide more space Increased number of play materials in each area to reduce conflict

Supervisor training. After 20 to 31 days of baseline observation, supervisors were trained individually in a collaborative team approach for promotion of social interaction. Training consisted of a 17-page manual (available from the authors) that described the approach, the role of the supervisor in the approach, and components of introducing the approach to the resource and classroom teachers. During 2-hr sessions, supervisors read through the manual and were instructed in its components using role playing, coaching, and feedback. In a session held in the supervisor's office, the authors role played, then explained each component of the approach. The supervisor was then invited to role play the components one at a time, and was given feedback from the trainers and additional instruction if needed. Training continued until a supervisor met performance criteria.

The collaborative team approach consisted of three components. First, the supervisor arranged a 30-min meeting with resource and classroom teachers to request that together they develop a program to increase the positive social interaction of all children in the class including children with disabilities. Second, the supervisor gave the teachers a six-page manual (available from the authors) which instructed the two teachers (a) to define the specific social behaviors to be targeted in their strategy; (b) to set a measurable objective for each target behavior; (c) to develop a plan to promote positive social interaction of children in the class, specifically identifying adjustments to the class curriculum or activities (e.g., more toys that encourage social interaction), adjustment in teachers' instructional behaviors (e.g., prompting, praising), and physical arrangements (e.g., limiting the number of children allowed in one play center); and (d) to monitor changes in children's social interaction. No specific directions or examples of programming ideas were presented in the manual. The manual emphasized the importance of the collaboration of resource and classroom teachers on the development of a plan for the entire class. Areas of curriculum and activities, teacher instructional behaviors, and physical arrangements were selected for their correspondence to the three classroom variables identified by Odom and Strain (1984a) as facilitating peer interaction in preschool settings.

A second 30-min meeting of the supervisor and teachers was held approximately 1 week later, when the resource and classroom teachers presented their written plan to the supervisor. The supervisor was provided with a checklist to review the teachers' proposal. The checklist addressed whether the teachers developed a plan for each of the three suggested areas contained in the teacher manual.

The supervisor was instructed to give feedback to teachers without specific direction or correction.

Finally, the supervisor made at least three unannounced visits to classrooms during indoor play periods within 2 weeks after the implementation of the teachers' plan. During these visits, the supervisor briefly observed children's play and provided positive feedback to teachers without giving specific direction or correction. Neither the supervisor nor the teachers were encouraged to apply their strategy in settings other than the indoor play period, nor to develop additional peer interaction strategies for other settings. A summary of the plans developed by the teacher pairs to promote peer interaction is shown in Table 1.

Implementation Integrity

Two methods were used to measure the integrity of the supervisor's implementation of training in the collaborative team approach (Peterson, Homer, & Wonderlich, 1982). First, the supervisor completed a 17-item checklist indicating whether she had implemented specified components of the approach. Second, the supervisor audiotaped each of the two meetings with resource and classroom teachers. These audiotapes were later scored by a judge (naive to the purpose of the study) against 17 criteria. The judge's ratings and the self-ratings indicated that all three supervisors met 100% of the implementation criteria.

RESULTS

Teachers' Behavior

All classroom teachers increased their behavior towards individual children with disabilities in both training and generalization settings (Figure 1). Baseline levels of teacher behavior directed towards individual children with disabilities were low in the training setting, but increased more than threefold after supervisor training (from a mean of 5.5% to 18.7% in Class 1; from a mean of 5.7% to 20.0% in Class 2; and from a mean of 6.0% to 28.4% in Class 3).

Concomitant with increased levels of teacher behaviors directed towards individual children with disabilities was a reduction in their focus on children without disabilities. Figure 2 depicts the percentage of teacher behaviors directed towards individual children without disabilities in the training and generalization settings. There was a marked decrease in the level of teacher focus on children without disabilities in the training setting after the introduction supervisor training (from a mean of 42.5% to 24.7% in Class 1; from a mean of 54.9% to 34.6% in Class 2; and from a mean of 35.5% to 18.7% in Class 3). Similar or greater reductions in classroom teacher focus were found in the generalization setting (from 32.7% to 13.5% in Class 1; from 42.2% to 29.4% in Class 2; and from 38.2% to 21.4% in Class 3).

Children's Behavior

Children with disabilities. Figure 3 presents the percentage of interactive play for each child with disabilities in training and generalization settings. Children with disabilities more than doubled their level of interactive play (IP) in the training setting from baseline to supervisor training (from a mean of 14.4% to a mean of 36.8%, averaged across the 5 children with disabilities). There was a similar increase in the IP of children with disabilities in the generalization setting (from a mean of 21.4% to 50.0%).

The means of disabled children's behaviors during baseline and supervisor training are shown in Table 2. It can be seen that increases in the interactive play of children with disabilities were accompanied by corresponding decreases in their isolated/unoccupied play and no play for all but Jason.

Comparison children. Similar increases in IP were found for comparison children. Figure 4 presents the session mean percentages of IP for comparison children for each class, both in the training and generalization settings. Comparison children in Classes 1 and 2 increased their level of IP in training and generalization settings (from a mean of 14.7% to 40.7% and from a mean of 28.7% to 58.1%, respectively). In contrast, comparison children in Class 3 showed a reduced level of IP after supervisor training was introduced (from a mean of 42.0% to 22.8%). This reduction was not found during

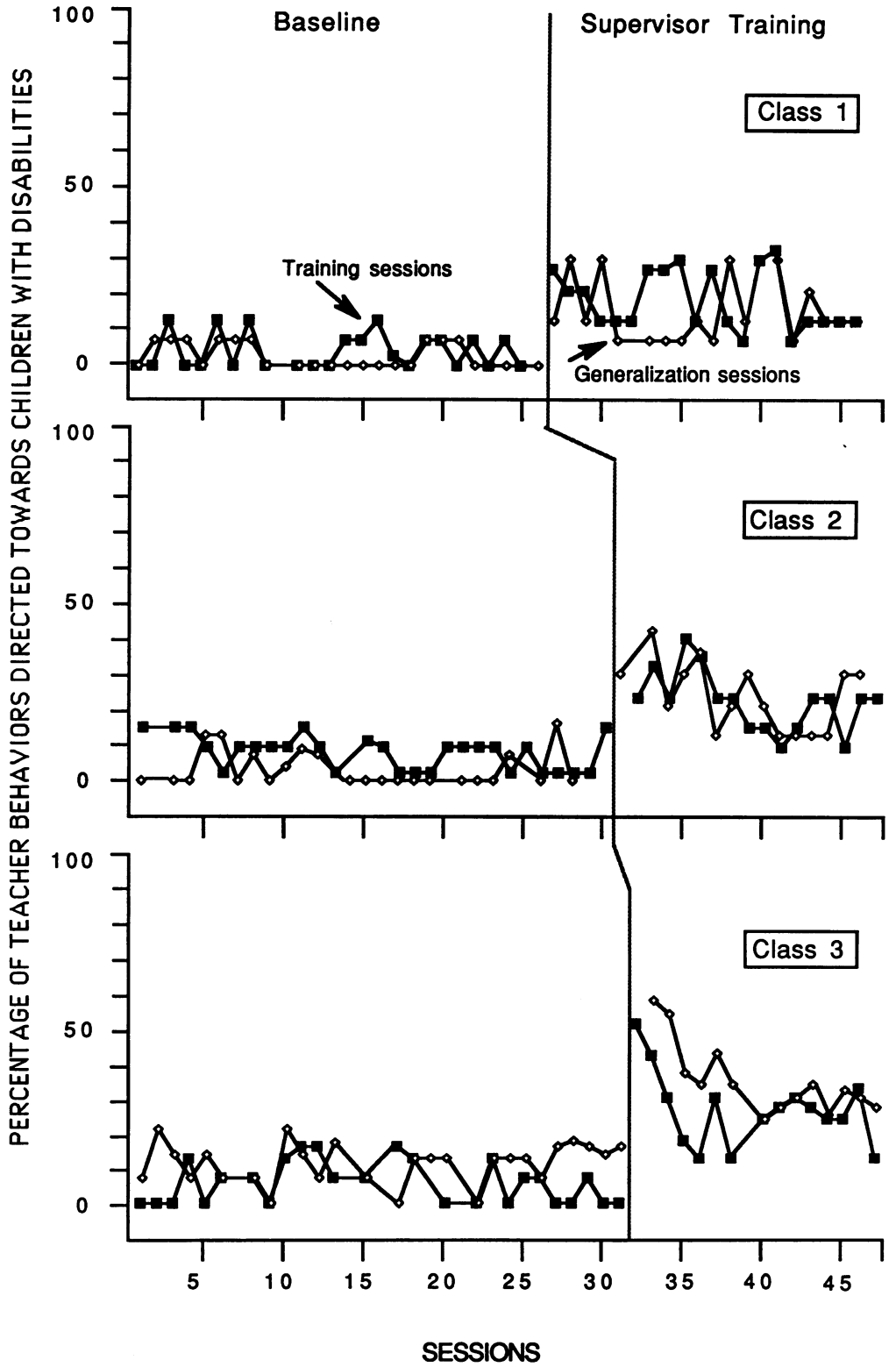

Figure 1. Percentage of teacher behaviors directed to children with disabilities in training and generalization settings.

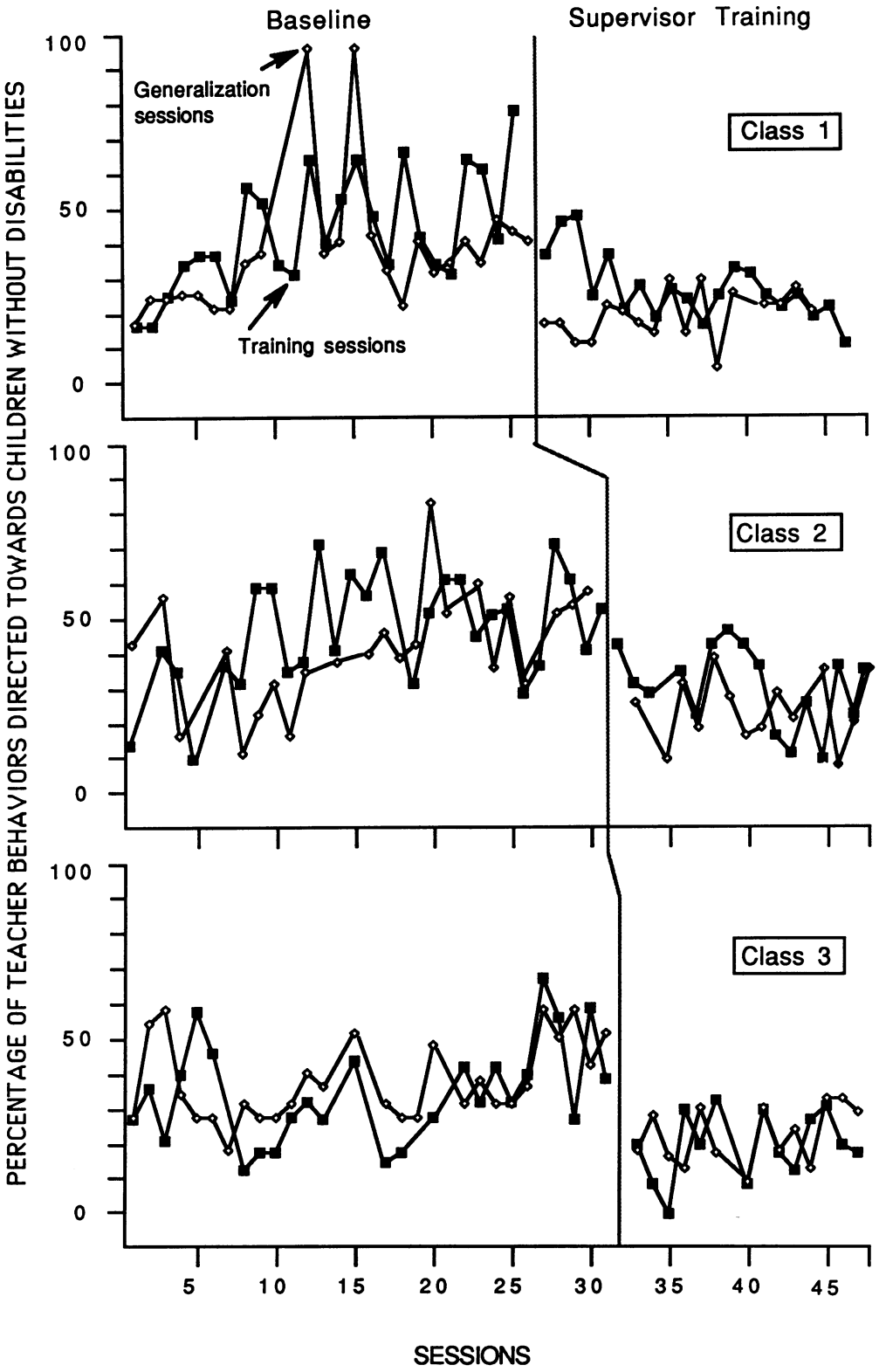

Figure 2. Percentage of teacher behaviors directed to children without disabilities in training and generalization settings.

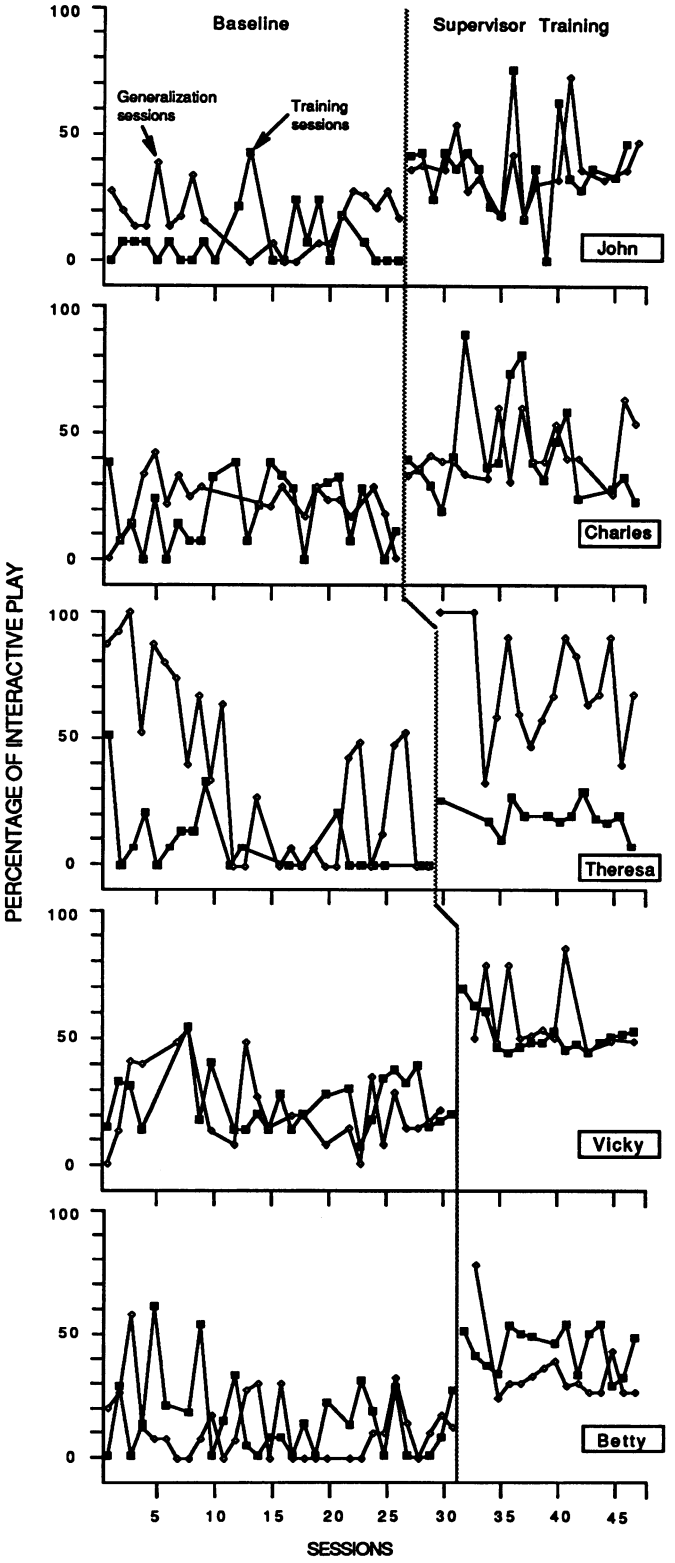

Figure 3. Percentage of interactive play per session for children with disabilities in training and generalization settings.

Table 2
Mean Behaviors of Children with Disabilities in Training (T) and Generalization (G) Sessions during Baseline and Supervisor Training

	IO		PP		IP		NP		NO	
	T	G	T	G	T	G	T	G	T	G
Jason										
Baseline	6.2	2.2	68.4	45.7	7.8	18.1	0.0	0.7	24.6	33.3
Supervisor training	7.6	8.6	28.6	38.3	32.5	37.7	0.5	1.1	30.8	14.3
Charles										
Baseline	8.3	5.1	58.7	55.6	17.5	19.8	1.3	9.5	14.2	10.0
Supervisor training	1.4	10.2	43.3	41.6	44.1	43.4	1.5	0.5	9.7	4.3
Theresa										
Baseline	19.5	3.2	41.5	36.9	9.8	36.7	2.3	6.3	26.9	17.2
Supervisor training	16.3	2.8	41.6	18.6	16.9	68.8	3.3	3.0	21.9	6.8
Vicky										
Baseline	9.5	18.4	33.6	44.9	24.1	21.9	4.8	1.7	28.0	13.1
Supervisor training	1.2	3.6	42.0	36.9	49.1	55.4	2.4	0.9	5.3	3.2
Betty										
Baseline	17.2	15.1	44.2	51.2	12.7	10.7	3.6	1.5	22.3	21.5
Supervisor training	8.6	9.6	32.3	37.2	41.6	44.6	1.2	0.0	16.3	8.6

Note. IO = isolated/occupied play; PP = proximity play; IP = interactive play; NP = negative play; NO = no play.

the generalization settings, where the IP of comparison children in Class 3 increased from a mean of 31.7% to 54.6%.

Teacher Ratings

The 6 teachers' mean ratings on the five-item survey were 4.8 (of 5 possible) for the acceptability of the supervisor's assistance (Item 1), 3.7 for making the job less difficult (Item 2), 4.8 for the helpfulness of the supervisor's assistance (Item 3), 4.8 for the ease in working out strategies (Item 4), and 4.8 for the effectiveness of their strategy for social interaction (Item 5). These results suggest that both resource and classroom teachers found the collaborative team approach beneficial, thus supporting the social validity of the intervention.

DISCUSSION

Supervisors were trained in a collaborative team approach to encourage resource and classroom teachers in developing their own strategies to promote peer interaction. Supervisor training increased classroom teacher behaviors directed towards children with disabilities and reduced their behavior directed towards children without disabilities in both the training and generalization settings. These changes in teacher behavior were associated with increases in the interactive play of children with disabilities in both settings. Because they could not be identified at the beginning of the study, teacher behaviors associated with their implementation of peer interaction strategies were not measured. As a result, although a change in the focus of teacher behaviors can be demonstrated, what other changes in teacher behaviors may have more directly produced an increase in child peer interaction are unknown. Moreover, it is possible that uncontrolled variables, such as the behavior of resource teachers, may have contributed to the results.

During separate debriefing sessions held at each setting, classroom teachers attributed the increase in children's social interactions to their increased frequency of praising and promoting disabled children to join other children in play. It is interesting to speculate on the reasons the interaction of nondisabled children increased (in most cases) as teacher attention to those children declined. In contrast,

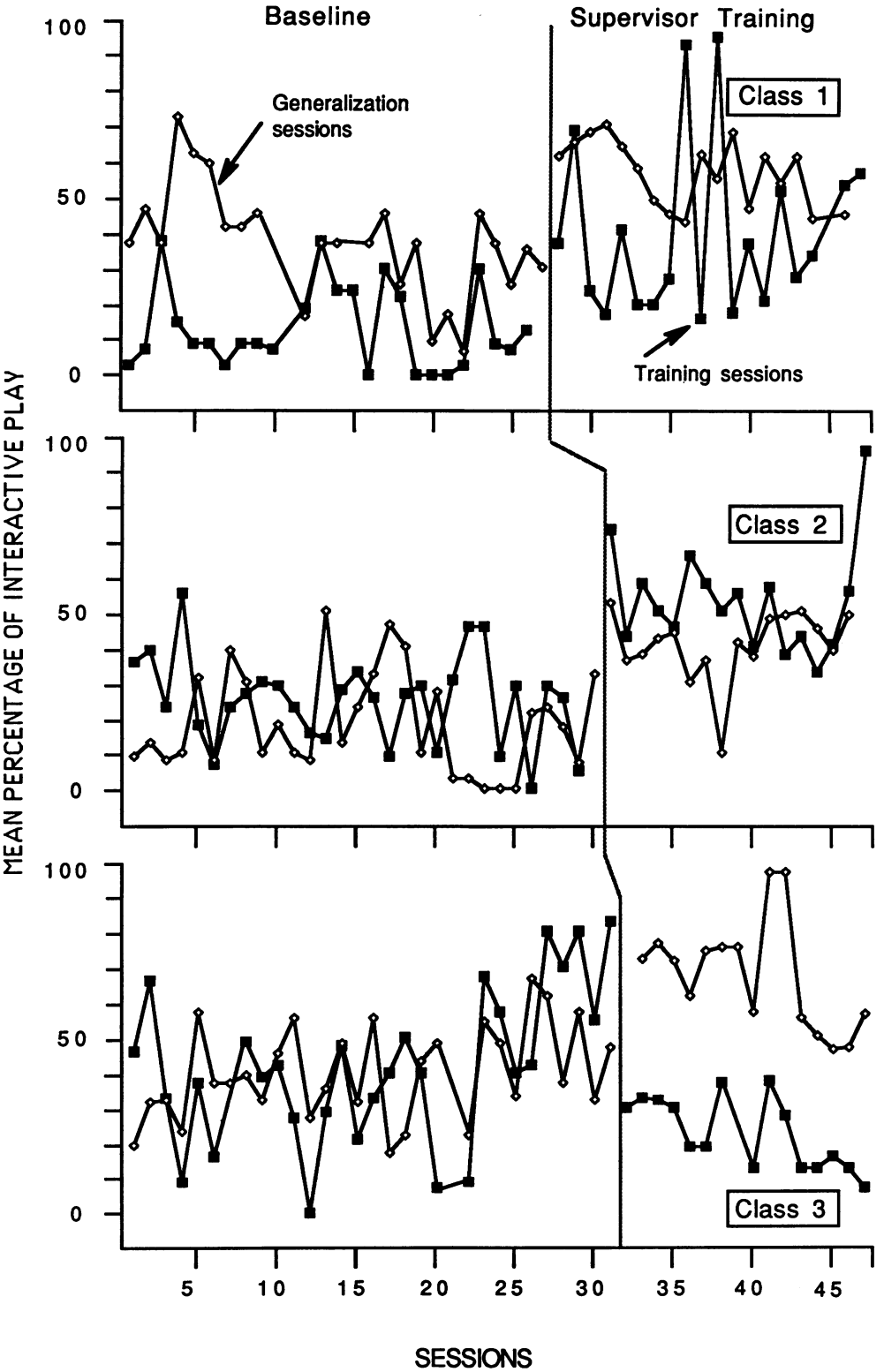

Figure 4. Mean percentage of interactive play per session for comparison children in each class in training and generalization settings.

disabled children's social interactions increased as they received more teacher attention. It may have been that the social behavior of nondisabled children increased in response to elevations in the interaction of children with disabilities. Alternatively, nondisabled children may have reacted vicariously (Kazdin, 1973) to the increase in teacher attention to disabled children.

Also, there seems to have been a decreasing trend in teacher behavior towards children with disabilities for Classes 2 and 3 (see Figure 1). This decline may have reflected a drift in teacher behavior from their program plan as supervisor visits to the classroom were faded. Another interpretation is that teachers reduced their support as children with disabilities interacted more independently.

Comparison children in two of the three classes increased their levels of interactive play in the training setting, and comparison children in all three classes increased their interactive play in the generalization setting. For one class, the interactive play of comparison children in the training setting declined after the introduction of supervisor training. The reasons for this reduction are unclear. It may have been that the procedures introduced to promote social interaction in that class may have impeded the manner in which these comparison children played with other children. For example, previous studies have found social play of preschoolers to be interrupted by teacher interaction (Brinker & Thorpe, 1986; Brophy & Hancock, 1985).

This study differed from previous attempts to promote social interaction in educational settings in its use of training supervisors in a collaborative team approach. More typical are studies that have examined the impact of experimenter-designed interventions that are implemented by preschool teachers (e.g., Hundert & Houghton, 1992; Jenkins, Odom, & Speltz, 1989; Odom, Strain, Karger, & Smith, 1986). In the present study, the specific strategies were developed by the teachers, using a planning guide.

Process-focused interventions have been used successfully to introduce programs in applied settings. Parsons et al. (1987) trained principals in a participative management approach to encourage elementary school teachers to increase the amount of functional training for children with developmental disabilities. Peck, Killen, and Baumgart (1989) used collaborative consultation to increase preschool teachers' implementation of individualized educational programs in language for children with disabilities. These interventions tended to introduce a planning structure that capitalized on teachers' existing skills.

Supervisor training contained a number of components, any or all of which may have contributed to the obtained effects. One component was supervisor feedback to teachers about their development and implementation of programs to promote social interaction. Administrative feedback has been shown to be an effective procedure for staff training in institutions (Page et al., 1982), schools (Parsons et al., 1987), and a nursing home (Burgio, Engel, Hawkins, McCormack, & Jones, 1990).

A second component was the consultation by resource teachers with classroom teachers in the design of class strategies to promote social interaction. Resource teacher consultation has been found to produce student gains (Friend, 1985; Polsgrove & McNeil, 1989), and is seen by teachers as a preferred form of assistance to accommodate children with disabilities (Myles & Simpson, 1989).

A third component was the collaborative planning process that involved the supervisor and the resource and classroom teachers. A planning process that encouraged the collaboration of individuals working together towards a common goal may have prompted actions from individual participants that enhanced the efforts of all (Graden, 1989; Tindal, Shinn, & Rodden-Nord, 1990). It is unclear which combination of these three (or other components of supervisor training) may have contributed to the results.

It is also possible that supervisors' requests to teachers to develop strategies were sufficient to produce changes in teacher behaviors, especially combined with possible teacher reactivity to observers in their classrooms (Repp & Deitz, 1979). Although this possibility cannot be dismissed, previous staff training studies suggest that administrative requests alone do not produce lasting changes

in staff behavior (Burgio et al., 1990; Quilitch, 1975).

The results suggest that generalization occurred in teachers' and children's behaviors after supervisor training. A collaborative team approach is consistent with a "self-mediated stimuli" strategy to encourage generalization (Stokes & Osnes, 1986, p. 433). Teachers may have acquired planning responses applicable to promoting children's social interaction in a variety of situations (Gutkin & Curtis, 1982). Moreover, supervisor feedback and increased consultation from the resource teacher may have served as a "natural community of reinforcement" (Stokes & Osnes, 1986, p. 418) and rendered the preschool environment more responsive to classroom teachers' attempts to promote social interaction. Only setting generalization was examined in this study. The extent to which effects from supervisor training in the collaborative approach produced effects that generalize over time or to other programming areas (e.g., communication, self-care behaviors) is unknown.

The impact of an intervention depends upon whether and how it is implemented. This is particularly true for consultation to staff in community settings in which the consultant does not directly manage staff performance or the programming expectations in the work setting (Ziarnik & Bernstein, 1988). Staff members' efforts to deal effectively with clients may be facilitated or impeded by contextual (Dumas, 1989) or ecological (Brinker & Thorpe, 1986; Greenwood, Carta, Kamps, & Arreaga-Mayer, 1990) variables. For instance, the amount and type of administrative or consultative support and the process by which the support is provided may predict how a teacher will implement a classroom behavior program. Although there have been studies addressing the relationship between classroom ecologies and children's behaviors (e.g., Greenwood et al., 1990), there has been little focus on the relationship between school ecologies and teacher implementation of behavior strategies. An understanding of which contextual variables can influence which teacher behaviors under natural conditions may help to derive more powerful interventions (Dumas, 1989). The functional relationship between contextual variables in schools and teacher program implementation should be the focus of future research.

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